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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,924	11/19/2001	Christopher J. Orlick	MATP-612US	9367
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	09/988,924		ORLICK ET AL.	
	Examiner		Art Unit	
	Trang U. Tran		2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7,9-24 and 26-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3,5,7,9-12,18-24 and 26-31 is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed June 19, 2007 have been fully considered but they are not persuasive.

In re page 14, applicant argues, with respect to claim 16, that Jiang et al does not disclose or suggest the limitations of claim 13, that the examiner asserts that Kim et al teaches generating a non-linear inter-field interpolated pixel value, and that Kim et al does not, however, disclose or suggest combining the intra-field interpolated pixel value and the non-linear inter-field interpolated pixel value in a proportion determined by the degree of movement in the region to produce an output interpolated pixel value for the progressive scan video image as recited in claim 13.

In response, the examiner respectfully disagrees. As discussed in the last Office Action, Jiang et al discloses the claimed "combining the intra-field interpolated pixel value and the inter-field interpolated pixel value in a proportion determined by the degree of movement in the region to produce an output interpolated pixel value for the progressive scan video image" and Kim et al discloses the claimed non-linear inter-field interpolated pixel value. When Jiang et al and Kim et al are combined as proposed by the examiner, the combination of the references would disclose the claimed "combining the intra-field interpolated pixel value and the non-linear inter-field interpolated pixel value in a proportion determined by the degree of movement in the region to produce an output interpolated pixel value for the progressive scan video image" as recited in the amended claim 13.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US Patent No. 6,421,090 B1) in view of Kim et al (US Patent No. 5,786,862).

In considering claim 13, Jiang et al discloses all the claimed subject matter, note 1) the claimed determining a degree of movement in a region of a target picture element (pixel) position between a last displayed image and a current image is met by the motion value of target pixel is detected in step 22 (Figs. 2-4, col. 5, line 57 to col. 7, line 40), 2) the claimed generating an intra-field interpolated pixel value for the target pixel position is met by the intra-field interpolation step (edge interpolation) (col. 9, lines 4-32), 3) the claimed generating an inter-field interpolated pixel value for the target pixel position is met by the inter-field interpolation (Else step), if motion is very low, all of the value of pixel X is determined from its value C in the next field (col. 9, lines 4-32), and 4) the claimed combining the intra-field interpolated pixel value and the inter-field interpolated pixel value in a proportion determined by the degree of movement in the region to produce an output interpolated pixel value for the progressive scan video image is met by the step of combining both intra-field and inter-field values for each pixel in a frame, weighted by the detected motion at the pixel and the detected edge

(col. 9, lines 4-32). However, Jiang et al does not specifically disclose a non-linear inter-field interpolated pixel value.

Kim et al teach that initially, interpolation methods were developed for NTSC systems, thereafter, various interpolation methods have been proposed which have in common restoring through interpolation lines omitted during an interlaced scan, conventional interpolation methods are described in the following references: [1] simple line doubling scheme..., [2] edge direction dependent deinterlacing method..., [3] non-linear interpolation methods..., [4] a motion adaptive method (col. 1, lines 21-60).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the old and well known of using a non-linear interpolation value as taught by Kim et al into Jiang et al's system in order to increase the flexibility of the system by using difference interpolation methods.

In considering claim 14, Jiang et al discloses all the claimed subject matter, note 1) the claimed wherein the step of determining a degree of movement in the region of the target pixel position between a previously displayed image and the interlace scan image includes a steps of: selecting a plurality of corresponding pixel positions in the region of the interlace scan image and in a corresponding region of the previously displayed image is met by segmenting pixels together by analyzing groups of pixels around pixel X for succession of fields (Figs. 3-4, col. 6, lines 10-38), 2) the claimed generating a respective plurality difference values, each representing a difference between one of the selected pixel positions in the interlace scan image and the respective corresponding pixel position in the previously displayed image values is met

by the differences between respective pairs of segments of pixel adjacent (or containing) pixel X from successive fields (blocks 202c-202f of Fig. 4, col. 6, lines 39-59), 3) the claimed determining a maximum difference value of the plurality of difference values is met by the maximum difference values (block 208 of Fig. 4, col. 6, lines 59-67), and 4) the claimed comparing the maximum difference value to multiple respectively different threshold values to determine the degree of movement in the region of the target pixel position is met by the reloadable look-up table 210 (Fig. 4, col. 7, lines 1-41).

In considering claim 15, the claimed wherein the step of generating an inter-field interpolation value includes the step of generating a field-merge interpolation value is met by the inter-field interpolation (Else step), if motion is very low, all of the value of pixel X is determined from its value C in the next field (col. 1, lines 25-38 and col. 9, lines 4-32).

In considering claim 16, Kim et al disclose the claimed "wherein the step of generating an inter-field interpolation value includes the step of generating a non-linear interpolation value in col. 1, lines 21-60 "interpolation methods were developed for NTSC systems, thereafter, various interpolation methods have been proposed which have in common restoring through interpolation lines omitted during an interlaced scan, conventional interpolation methods are described in the following references: [1] simple line doubling scheme..., [2] edge direction dependent deinterlacing method..., [3] non-linear interpolation methods..., [4] a motion adaptive method".

Allowable Subject Matter

4. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Claims 1-3, 5, 7, 9-12, 18-24 and 26-31 are allowed.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571) 272-7358. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 4, 2007



Trang U. Tran
Primary Examiner
Art Unit 2622